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We trust that this invaluable work of reference on palæarctic birds will be pushed to an early completion.— W. S.

Economic Value of Wild Birds in South Africa.— Dr. H. E. Warren, Director of the Natal Museum has recently published¹ an instructive summary of the relation of South African birds to agriculture. Dr. Warren comments on the abundance of birds in certain European countries and attributes their numbers in large part to the prevalence of hedges which furnish shelter and nesting sites. A noticeable scarcity of birds in South Africa is thought to be due to excessive clearing, the lack of hedges, and to the destructive activities of native and white boys.

The following groups of birds are said to be beneficial: owls, kestrels, the Tetraonidæ, coucals, woodpeckers, barbets, hoopoes, Caprimulgidæ, rollers, and cuckoos. Special mention is made of locust birds, including the white stork, the white-bellied stork, pratincoles, wattled starling and the hadadah ibis. Other groups coming in for commendation are the plovers, lapwing, cranes, the secretary-bird, ground hornbill, kites and certain other birds-of-prey. The birds mentioned as injurious include bulbuls, mouse-birds, and the pied starling.— W. L. M.

Bird Enemies of Diabroticas.— Two of the recent contributions from the U. S. Bureau of Entomology, published in the new series of Bulletins of the Department of Agriculture contain notes on the bird enemies of destructive beetles. The southern corn rootworm (*Diabrotica duodecimpunctata*), the adult of which is usually known as the spotted cucumber beetle, is a serious pest. High percentages of the stand of corn in some localities are damaged and this in addition to losses among cucurbit and other crops contribute to a total damage amounting to many thousands of dollars. The ubiquitous beetle responsible for this mischief is eaten by many birds. A list of 24 species furnished by the Biological Survey is published² by Professor F. M. Webster, the author of the two bulletins here mentioned.

A closely related beetle, the western corn rootworm (*Diabrotica longicornis*), causes the same sort of damage as its congener, and to a corresponding extent in its more limited range. The Biological Survey was able to furnish³ the names of only two bird enemies of this pest, namely the night-hawk and the wood pewee.— W. L. M.

Shelford's 'Animal Communities in Temperate America.'⁴— With the chief exceptions of investigations in Michigan under Adams and

¹ Agr. Journ. of South Africa. VI, No. 3. Sept. 1913, pp. 461-465.

² Bull. No. 5, U. S. Dept. of Agriculture, Sept. 1913, p. 9.

³ Bull. No. 8, U. S. Dept. of Agriculture, Sept. 1913, p. 6.

⁴ Shelford, V. E. Animal Communities in Temperate America as illustrated in the Chicago region. Bull. No. 5, Geog. Soc. of Chicago, October, 1913, 362 pp.

Ruthven, and Shelford's personal researches in ecology, ecological studies in this country have heretofore related almost entirely to plants. Shelford's status as a pioneer animal ecologist is therefore clear. The importance of the subject and his mastery of it are demonstrated by the book herewith reviewed.

The contents of 'Animal Communities in Temperate America' may be conveniently grouped in 3 categories, a general discussion of the animal organism and its environmental relations (3 chapters), the nature of various environments and an account of their inhabitants (11 chapters), and a general summary and theoretical discussion (one chapter.) Ecology as generally understood is the relation of organisms to environment. As environment includes all living things with which a species comes in contact as well as its inorganic surroundings, it is easy to see that ecology is a very comprehensive science. In fact the impression one gathers from the introductory chapters of Shelford's book is that ecology is only less broad than biology as a whole.

The science of ecology has one obstacle to struggle against, that is, the impression that ecological papers often seem to be but an elaboration of the obvious. The present reviewer must admit that this criticism is not unfounded; in fact the impression forced upon him by a pretentious ecological publication of some years since took the following form, somewhat Hibernice, that it was a statement of things everyone knew in language no one could understand. Ecologic terminology is not carried to an extreme in Shelford's book. The statement of facts constituting part of the fundamental knowledge of most biologists is necessarily included. A little inspection, however, shows that the ecologist endeavors to get at the physiological basis for the relations of animals to their environments. The obvious, well it is obvious, but the why of the obvious, ah! there is where the expert in ecology is needed. Everyone knows that black-fly larvæ live on the upper surfaces of stones in swift currents. Why they prefer this habitat is not so well known. Besides the evident advantage of having a plentiful supply of food constantly brought along by the stream, the ecologist has found that they cannot complete their life history in the absence of current. The pupa of the fly is loosely enclosed in a cocoon. It has been found that without current the insect *cannot make this cocoon*, but makes a shapeless tangle instead. Certain animals prefer sand that is less shifting and is slightly *darkened by humus*. Some fishes can live in water with only 1 cc. of oxygen per liter while others require from 6-14 cc. We might enumerate other instances of scientific answers to various whys, but suffice it to say that ecology is a field that has long needed cultivation. It has already produced valuable results but much remains to be done.

The notes on birds in this book consist largely of lists of the species inhabiting various formations. There can be little complaint about most of these, but the statement on page 274 that "The Baltimore and Orchard Orioles build elaborate nests on the shrubs," should be corrected. On page 166 the scarcity of information on quantity of life on the land is

mentioned. However the following papers bearing on this point could with advantage have been abstracted or cited in the bibliography.

Burns, F. L. A warbler census. *Osprey*, Vol. 2, No. 4, Dec. 1897, pp. 48-50.

" A sectional bird census. *The Wilson Bulletin*. N. S. Vol. 8, No. 4, Dec. 1901, pp. 84-103.

Forbes, S. A. An ornithological cross-section of Illinois in Autumn. *Bul. Ill. State Lab. Nat. Hist.*, Vol. 7, 1907, pp. 305-335.

" The mid-summer bird life of Illinois: a statistical study. *Am. Nat.*, Vol. 42, Aug. 1908, pp. 505-519.

Hales, H. The birds on a farm. *Oologist* [Willard's]. Vol. 5, 1880, pp. 73-75.

McAtee, W. L. Census of four square feet. *Science*, N. S., Vol. 26, Oct. 4, 1907, pp. 447-449.

Some remarks on the economic significance of birds call for further comment here. On pages 8 and 10 Shelford notes the incongruities of protection based on sentimental grounds. We have no quarrel with these statements, since upon the basis of sentiment alone, the protection of all groups may be urged with equal propriety.

The protection of birds for economic reasons is an entirely different matter, and to the reviewer, seems to rest upon an adequate foundation. Shelford says "Other things being equal there are but two more reasons for special measures for the preservation of birds, than for the preservation of reptiles, amphibians, or insects. First, birds are subject to destruction by reckless gunners. Second, they are less dependent upon natural conditions . . . and are better able to survive after land has been put under cultivation than some other groups." (p. 11.)

Two additional reasons for the protection of birds, one would say without reservation, should be enough to warrant preferential protection for them. The second reason given by Shelford touches the heart of the matter. Birds are abundant and very adaptable. They have to a large degree that independence of environment to which man owes in part the dominance he now enjoys. Birds have a greater potentiality for good than any other group of metazoa. The abundant small mammals are excluded for the same reason as vegetarian insects, their economic tendencies are too largely adverse to the best interests of man. Contrasted with other groups of predators upon the enemies of man, birds are greater destroyers and more mobile than any other group, they are more abundant than the mammals, and less subject to great fluctuations in numbers than the parasitic and predaceous insects.

There are few who would deny that as a group birds are more useful and less injurious, insects less useful and more injurious. As reasons for mundane activities usually go, those for special protection for birds are cogent.

Shelford stands pat in referring to "that detestable avian rat, the English sparrow." This again is a matter of sentiment, the bird is detestable to those who detest it. The following facts should not be forgotten. The

English Sparrow alone of all our birds will live in the parkless sections of large cities; to many people there it is *the only bird* and they would not give it up. As to economic value, it may be said that the English Sparrow is known to feed on a larger variety of insect pests than is any native bird and that it is one of the most effective enemies of the destructive alfalfa weevil.

The part of the theoretical discussion in Shelford's book that is probably of most interest to readers of 'The Auk' is that relating to geographical distribution. Remarks on page 161 indicate that the variously proposed laws of temperature control in the opinion of ecologists, do not fit the case. These opinions are summed up by Shelford on p. 299: "Nothing is, I believe, more incorrect than the idea that the same single factor governs the regional distribution of most animal species. Since the environment is a complex of many factors, every animal, while in its normal environmental complex, lives surrounded by and responds to a complex of factors in its normal activities." The question properly asked, "Can a single factor control distribution?" probably must be answered in the negative.

As to the general style of the book it may be said that it is not adapted to recreative reading. The book is frankly a manual or text-book, hence the style is direct, concise and inornate. The title more properly would read "Animal Communities in the Chicago Region." Temperate America not only includes part of the continent to the south but is of too broad implication even for the present treatment of the subject as applied to North America. The illustrations are abundant and good; the bibliography and indexes are excellent. The publication was subsidized and locally distributed by The Geographic Society of Chicago. It is handled, however, as one of the regular series of University of Chicago publications and may now be obtained only from the University Press.—W. L. M.

The Oriole.¹—This handsomely printed and well illustrated journal appears under the editorship of Mr. John Dryden Kuser who is also president of the Somerset Hills Bird Club, of which it is the official organ. The objects of the club are the protection and study of birds, and this, their first publication, will go far to attract attention to their work and to stimulate the members to further endeavor. There are articles by members, on the Chickadee, Passenger Pigeon, Cardinal and Mallard, illustrated by colored plates loaned by the National Association of Audubon Societies, and other contributions of a more general nature including one by W. De W. Miller, 'Hints on Bird Study'; and one by C. Wm. Beebe, 'Feathered Martyrs.' Dr. Wm. H. Wiegmann also contributes three records of the Purple Sandpiper near New York City, and a note on the occurrence of the Bartramian Sandpiper, both rare species in this vicinity.

We congratulate the editor of the Oriole upon its creditable appearance and trust it may have a useful and successful career.—W. S.

¹ The Oriole. Official Organ of the Somerset Hills Bird Club, Bernardsville, N. J. Vol. 1, No. 1, August, 1913.